

# Chemically and Thermally Stable High Energy Density Silicone Composites, Phase I

Completed Technology Project (2008 - 2008)



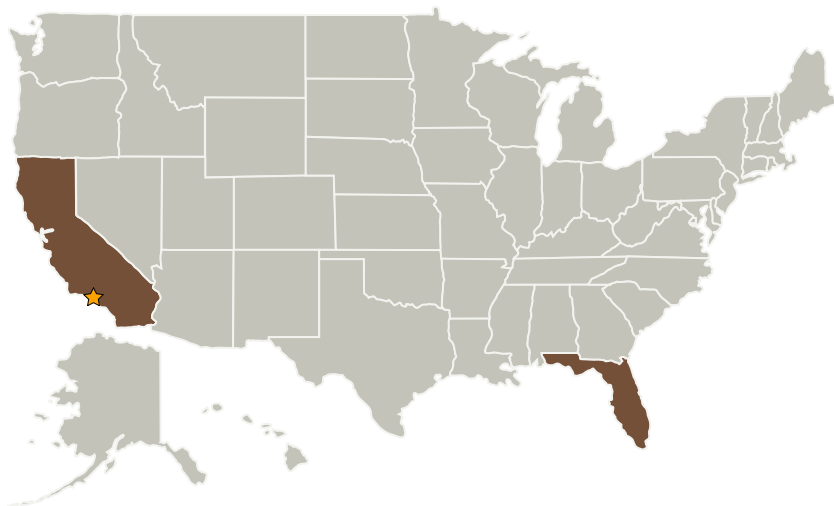
## Project Introduction

Thermal energy storage systems with 300 -- 1000 kJ/kg energy density through either phase changes or chemical heat absorption are sought by NASA. This proposed effort will design, fabricate and demonstrate an energy storage system utilizing a composite of silicone polymers (organosiloxanes) and sorption materials. The proposed technology would provide cooling from a source at 100

o

C or higher. In proof-of-concept experiments, related composites have already been produced, and energy densities exceeding 400 kJ/kg have been demonstrated. The innovative encapsulation technology can provide a barrier that prohibits poisoning of the sorption material by planetary atmospheric gases, and ensuring long-duration storage and safe handling before and during mission. The composites can be produced in a form that facilitates conformal coverage of intricate parts and hard to reach surfaces.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory (JPL)	Lead Organization	NASA Center	Pasadena, California
DMD Concepts	Supporting Organization	Industry	Rockledge, Florida



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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## Primary U.S. Work Locations

California

Florida

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Dwight Back

## Technology Areas

### Primary:

- TX03 Aerospace Power and Energy Storage
  - └ TX03.2 Energy Storage
    - └ TX03.2.3 Advanced Concepts for Energy Storage